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ABSTRACT

This study described teaching methods in use in computer studies classes, explored the reasons for their use, and explored perceptions of effectiveness. Four main research methods were used: semistructured interviews; observation of teaching; perusal of course documents; and informal collection of information by talking to students and tutors. One class studied had a slightly more formal approach--lectures supported by handouts and overhead projector slides followed by practical exercises for the students; the other had a less formal approach--brief talks interspersed with practical activities, self-selection of computing activities, and social activities. Students found plenty of hands-on experience backed up by individual support from tutors most effective. Four main dimensions of effectiveness for students were identified: effectiveness as learning about computing; effectiveness as an interest in computing; effectiveness as enjoyment of the course; and effectiveness as gaining self-awareness. Data suggested six subsidiary factors that influenced teaching effectiveness: guidance and continuous support; class composition; student isolation; tutor isolation; resources; and evaluation/assessment. (Nine references and descriptions of evening and day courses are appended.) (YLB)

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PERCEPTIONS OF EFFECTIVE TEACHING METHODS IN COMPUTER STUDIES

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There is increasing attention on the need to encourage greater adult participation in education and training. Little is known, however, about the kinds of teaching methods adults encounter when they do return to study. This report is one of a series of case-studies on the teaching methods used in a range of courses and on perceptions of their effectiveness.

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PREFACE

This case-study of teaching and learning in computer studies courses is part of a larger research project on teaching and learning in adult education. The aim of the research is to identify teaching methods which adult learners and their tutors perceive as effective across a range of different kinds of courses. We wish to emphasise that the focus of the research is on teaching methods. By reporting adult learners' perceptions of the effectiveness of methods we are able to speculate a little about how adults learn. However, the research was *not* directed at exploring this. The concern was to describe the teaching methods in use, explore the reasons for their use and explore perceptions of effectiveness. We have little to say about, for example, what the adult learners were bringing to their courses in terms of motivation, previous experience or knowledge.

In due course our final report will draw comparisons across the range of courses studied. However, it was thought that the case-study reports of specific subject areas would be of interest to those working in these areas.

The report is deliberately brief and is divided into four chapters. Chapter 1 provides descriptive information about the focus of the research, the particular courses studied and the research methods used. Chapter 2 concentrates on the teaching methods which have been perceived as effective and identifies four main dimensions of effectiveness for students: effectiveness as learning about computing, effectiveness as an interest in computing, effectiveness as enjoyment of the course and effectiveness as gaining self-awareness. Chapter 3 looks beyond teaching methods to a range of other factors identified by our respondents, as affecting effective teaching. Chapter 4 contains the main findings and a summary. Finally we include, as two brief appendices, descriptions of course content and methods.

This report would not have been possible without the help and co-operation of many people. We are particularly grateful to the adult students and their tutors for putting up with us observing their 'classrooms' and for sparing time to be interviewed. We are grateful too, to Mavis Gutu who typed the report quickly and accurately. Responsibility for the content rests with the authors and the report does not necessarily represent the views either of SCRE or of SED who funded the research.

Summary

A brief summary is provided as a handy reference tool and as a guide to the main body of the report. Details of the research design and methods are contained in Chapter 1. It is important to refer to this chapter to understand the claims that can be made about the research. The detailed study of a small number of examples means that we can raise points for consideration by adult educators. We cannot generalise about all computer studies courses. In Chapter 4 we summarise our findings.

Teaching Methods	A variety of teaching methods was used. Students found plenty of hands-on experience with the computers, backed up by individual support from their tutors, particularly helpful.	*Chapter 2*
Effectiveness of Methods	We report students' and tutors' perceptions of effectiveness. We had no independent measures of effectiveness.	*Chapter 2*
Effectiveness as learning about computing	Students quickly felt at ease with computers if there were user-friendly machines for each student, backed up by individual support from friendly tutors. Students also appreciated receiving lectures or brief talks and handouts about computing. They liked working at their own speed and to have some control over their own learning.	*Chapter 2*
Effectiveness as an interest in computing	Students wanted to learn how they could use computing at home or at work. Some Employment Training students wished to learn about programming and were disappointed that this was not the aim of the course. Therefore, they did not find the course interesting.	*Chapter 2*
Effectiveness as enjoyment	Students enjoyed learning something new and challenging. It gave them confidence and a sense of achievement.	*Chapter 2*
Effectiveness as gaining self-awareness	Students, particularly the unemployed, felt that they had gained something apart from an understanding of computing. Such gains included self-esteem through coping with new technology, and learning to mix with a variety of people.	*Chapter 2*
Guidance and continuous support	Several students seemed to be in need of more pre-course guidance because they could not see the relevance of the course for their own needs. Many of the Employment Training students appeared to require continuous support both for their vocational plans and for coping with their personal problems.	*Chapter 2*

Composition of the class	Both these courses were designed for beginners and yet some of the students had had previous computing experience. This created problems for both the students and tutors.	*Chapter 3*
Students' Isolation	Students liked to have opportunities to mix with each other and some complained if this was not provided for during the course. Some unemployed students remained unemployed after completion of a course. Club activities and a newsletter helped to prevent them from feeling isolated according to their co-ordinators and tutors.	*Chapter 3*
Tutor Isolation	The evening course tutors said that they lost contact with their students after the completion of the course. This meant that they had no means of evaluating the long term benefits of the course. The day course tutors felt that they were not given enough information about students before they came on a course.	*Chapter 3*
Resources	Tutors claimed that user-friendly machines enabled students to learn quickly. The provision of sufficient materials or flexibility between beginners' and more advanced courses would be helpful for dealing with students with a wide range of ability or of previous experience. This type of provision would enable students to work at their own speed. Tutors wished that they were given more time to prepare courses.	*Chapter 3*
Evaluation/Assessment	The evening course tutors felt that there was a lack of funding for evaluation. The day course tutors considered that the assessment procedures which were about to be implemented would allow students to move onto a more advanced course at their own speed.	*Chapter 3*
What students look for and how this is achieved	A list of methods associated with learning about computing, an interest in computing, enjoyment of the course and gaining self-awareness is provided. For instance, the provision of additional exercises and activities for quick students enabled all students to work at their own speed. Through gaining an understanding of computers, the students felt that they had learned something new and challenging. This experience was enjoyable.	*Chapter 4 Box 1*
Constraints on effectiveness	A list of constraints is provided. For instance, if tutors corrected errors too quickly and without offering explanation, students lost confidence in their own abilities at computing. If experienced students participated on a beginners' course, the less quick students felt confused.	*Chapter 4 Box 2*

We are not able to provide recommendations for adult educators because of the small sample. However, we hoped it would be useful to pose some questions for adult eductors to consider in relation to their own work. These questions arise from comments made by tutors and students about their experience. They are intended to provide a stimulus to discussion on course planning. These questions are repeated at the end of Chapter 4 as part of our conclusions.

Key questions for course planners

1) Has the type of computing being offered on a course been clearly defined to students before they attend? Can they see the relevance and appropriateness for their own needs?
2) What should providers do when a course attracts students with a wide range of experience or of ability? When do they consider that an advanced course should be developed? Are tutors being given sufficient non-teaching time for preparing additional materials for the quick learners?
3) Is the equipment being used on a course going to enhance or hinder students' learning?
4) Are there opportunities for students to learn from each other if they so wish?
5) Are the students given sufficient control over their own learning?
6) If students wish to continue studying computing, can the provider refer them to other courses?
7) Do some students eg the unemployed have needs other than the need to learn computing?

PERCEPTIONS OF EFFECTIVE TEACHING METHODS IN COMPUTER STUDIES

1

BACKGROUND

This chapter describes the focus of the research, the two computing courses studied, the sample of students and tutors who took part in the research and the research methods used.

THE RESEARCH QUESTIONS

These case-studies of computing courses are part of a larger research project on teaching and learning in adult education. The research is studying teaching and learning in Management Studies, 'O' Grade English, Business Studies and Personal Effectiveness courses as well as Computing Studies. The overall aim of the research is to provide a picture of the teaching methods used in these various courses and to report the adult students' perceptions of the effectiveness of these methods.

In the past twenty years or so there has been an increased intensity in the debate about whether distinctions should be drawn between the processes involved in educating children and those involved in educating adults. Knowles (1970) advocated the use of the term 'andragogy' as distinct from pedagogy, to denote the art and science of helping adults learn. He believed the reason adult education had not achieved a greater impact was that 'most teachers of adults have only known how to teach adults as if they were children.' He developed his theory in a number of papers (eg 1972, 1974) and, supported by writers such as Mezirow (1981) and Allman (1983), the ideas of a distinctive approach to the teaching of adults have gained ground.

Many suggestions have been made about the appropriate teaching methods to be used with adults. Although many of the authors of these suggestions would not accept the theory of andragogy, they do agree that the 'talk and chalk', or transmission of information by the 'expert' to the 'ignorant' so characteristic of school teaching, is inappropriate for adults. (Chadwick and Legge, 1984; Rogers, 1977; Stephens and Roderick, 1971; Brookfield, 1986).

The focus of the research, however, is not upon the validity of the theory of andragogy. Rather it is an attempt to explore, in a limited way, through a small number of case-studies the following areas;

- providers' definitions of adult students and the influence of adult students on teaching methods
- the differences between younger and adult students in terms of study habits, learning methods and motivation among others

- the advantages and disadvantages of a mixture of younger and older students in the same classes

- the problems in learning needs adults see themselves as having and the institutional responses to these

- adult students' perceptions of providers in terms of attitudes towards mature students and in terms of the range of teaching methods used

- the effectiveness of teaching methods in general and cost-effectiveness in particular.

We did not envisage that each study would provide information on all these areas. Providers who catered only for adults, for instance, might have little to say about mixed classes of younger and older students. Rather, we anticipated that we would comment on all these areas as a result of all the case-studies. This case-study focuses particularly on the effectiveness of teaching methods for learning about a new technology and through this on the learning need of applying knowledge and skills to practical situations either in a job or in the home.

THE COURSES

Computer Studies courses were chosen as the focus of our case-studies for two main reasons. Firstly, owing to a rapid increase in the use of computers both in the workplace and in the home, there is a considerable demand for such courses. Secondly, a number of different approaches to providing such courses are on offer and so we were able to select courses of different lengths, with different types and numbers of students and with different approaches to teaching. To achieve some parity between courses, we selected two courses that were intended for people with little or no previous computing experience. Moreover, we were interested to see how tutors introduced a new technology to students and to see too how students would react to the teaching of a topic which is new and therefore, perhaps, frightening to them. We suspected that many of the students on these courses would not have learned about computing at school. We give more information about each of the courses below.

Course A was part of an adult education programme run by a University Extramural Department in association with the Regional Education Department. It was for any adults interested in learning about and using information processing. The Department ran another computing course which students could take before or after this course. The fees were £14.50 but there were reductions for a variety of people, such as the retired and single parents. Disabled and unemployed people paid no fees. The course was designed for 20 students and ran for one evening per week for two months. Each session lasted two hours.

The course was described in the prospectus as 'an introduction to modern information

processing tools on a microcomputer.' During the course, the students used three different software packages involving text processing, graphics and spreadsheets based on the use of menus, windows and icons. Students needed no previous computing experience. Half of each session was spent on practical work.

The two tutors worked full-time in the University's Department of Computational Science. Two years ago, some new computer equipment was provided by funding from the University Grants Committee. The tutors wished to make this available to the community during the evening and so they suggested to the Head of Extramural Studies that they would like to start this course. They were assisted by one laboratory technician who remained with the students for the first hour of each session.

There were 17 students on the course, ten women and seven men. Their ages ranged from 30 to 65. Most of them had some type of professional employment. Three had retired; one was a housewife and two were unemployed. All, apart from two, had recently attended other adult courses either on computing or on some other subject.

The sessions took place in a computer laboratory within the University campus. Each student was provided with a computer which was connected to a laser printer and two image writers.

Course B was one of several computing courses run by a private employment training company in conjunction with a University Settlement scheme. Formerly, the co-ordinators and tutors had been employed only by the University Settlement Scheme. Course B was described as being an introductory computer literacy/word processing course for unemployed students who had been sent by various training agencies. It was full-time and lasted for two weeks. On completion, students could attend more advanced computing courses run by the same provider if they wished. The aim of the course was to teach students how to use a computer to fulfil a variety of office tasks, such as editing a document and setting up a data base.

The course had been run only once before and was at a very transitory stage due to recent and pending changes. Prior to this arrangement between the University Settlement Scheme and the employment training company, the tutor had been used to running a one week computing course which had been spread over two weeks and interspersed with other subjects. It had been a part of a five week course for unemployed people. The tutor was still in the process of trying to develop materials for changing the original course into this two week compact course. He was in the midst of receiving training from the new company and had to leave the teaching of this course in the hands of another tutor for some of the time that we were in the field. Moreover, within a matter of weeks, staff and students were to be transferred to a much larger open-plan classroom in another building with a different type of computer.

Initially, the tutor had worked for the University Settlement Scheme on a voluntary basis in connection with the five week course which was a Voluntary Projects Programme co-sponsored by the former Manpower Services Commission under their 'Action for Jobs' scheme. Subsequently, he was employed full-time. The substitute tutor who took over the course during the tutor's absence

because of in-service training, had likewise first worked for the University Settlement Scheme on a voluntary basis. He was now employed as a tutor for the more advanced computing courses which were offered by the same joint provider.

We observed two runs of the course; on the first we observed, there were four men students. On the second run of the course, there were seven students, four men and three women. Of the students on both courses, five were aged between 18 and the 27. The remaining six were in their 40's and 50's. All the students, apart from a computer trainer, were unemployed. Two had been unemployed for several years. Six students were working for the University under schemes for the unemployed which involved computing. Three students had had professional training; two had degrees or the equivalent. Five of the remaining students had some school or college qualifications and the remaining three appeared to have fairly minimal qualifications. One student was disabled; he was confined to a wheel-chair and was unable to use one hand. Another student was partially disabled. These disabilities prevented both students from continuing to work in their normal jobs.

We provide a brief summary of the similarities and differences between the two courses below.

	Topic	Fee	Teaching Approach	No. of Students	Characteristics of the Students
Course A Public Provider	An introductory information processing course	£14.50	Lecture for about a third of each session, practical exercises for two thirds.	17	11 professional posts; 3 retired; 1 housewife; 2 unemployed.
Course B Private Provider	An introductory computing course. (office word processing)	None	Mixture of brief talks, plenty of practical exercises and the occasional lecture.	A total of 11; 4 on first running of the course; 7 on second running of the course.	1 computing trainer, 10 unemployed: sent by various training agencies.

RESEARCH METHODS AND SAMPLE

There were four main research methods used: semi-structured interviews; observation of teaching; perusal of course documents; and informal collection of information by talking to students and tutors at coffee breaks and at other non-teaching times. In Course A, ten interviews with the students were conducted face to face and nine of these were tape-recorded. Because of a shortage of time, another seven students were interviewed during the last two sessions of the course by means of a shortened version of the interview schedule. The sample consisted of ten females and seven males. Their ages ranged from 30 to 65. The two tutors were interviewed separately and the interviews were tape-recorded. A discussion with the Head of the Department of Extramural Studies was held before the sessions began. In Course B, informal discussions with two co-ordinators were held prior to the course. At the end of the course, interviews with all of the students, the two tutors and a co-ordinator were conducted face to face, and were tape-recorded. The sample of students consisted of eight males and three females. Their ages ranged from 18 to the mid-50's. For Course A, the last four of the eight sessions were observed. For Course B, most of the first and parts of the second running of the course were observed. This observation was non-participant. It involved noting the teachers' and students' activities and noting changes in activity. There were two main purposes to the observation; firstly, to gather data on 'classroom' activities; and, secondly, to help inform interviews.

The data were content analysed deriving categories from our research questions. We progressively identified new categories from the data, making strenuous attempts to ensure that the data were being interpreted according to the same rules.

Table 1.1: Sample achieved

	Tutor	Co-ordinator	Student
Course A Evening	2	1	10 (full schedule and tape-recorded) 7 (shortened schedule)
Course B Day - full-time	2	2	11 (full schedule and tape-recorded)
TOTALS	4	3	28

CLAIMS ABOUT THE RESEARCH FINDINGS

What can we claim on the basis of the data collected from these two courses? Clearly the courses do not provide a statistical basis for generalising to teaching and learning in all computer studies courses. Nor do these case-studies provide us with detailed information about the thoughts and feelings of students and teachers. In addition, we have very little to say about the culture in which concerns about teaching methods are embedded. What we can claim is that we have found patterns of response about the perceived effectiveness of teaching methods. We hope that in describing these perceptions, those engaged in computing courses will consider whether they strike chords with their own experience. Are the comments made by the students and their teachers familiar? If so, are there possibilities for extending and developing the teaching methods used? In other words, we hope this study will provoke discussion and reflection on the teaching methods being used, their rationale and effectiveness.

TEACHING METHODS AND PERCEPTIONS OF THEIR EFFECTIVENESS

INTRODUCTION

This chapter concentrates on the teaching methods used in the two courses and on how effective the methods were in the opinion of students and tutors. It is important to stress that we have no independent measures of effectiveness. Indeed, we had a fairly broad view of what 'effectiveness' might mean. Methods might be effective in the sense of helping the students acquire the knowledge and skills intended by the tutor. They might be effective in encouraging adults to attend other courses, or in any number of other ways. Our questions of effectiveness were deliberately phrased to allow our respondents to talk about effectiveness in the ways most appropriate to them. We return to the question of effectiveness later in this chapter. First, we describe the teaching methods used.

THE TEACHING METHODS

Both courses were intended for students with no previous computing skills. But the type of student attending the two courses was very dissimilar and, not surprisingly, this had some effect on the teaching methods used. The evening Course A students were mainly in full-time professional employment whilst the full-time Course B students were mainly unemployed and some had fairly basic educational qualifications. The learning needs of the latter students were seen by their tutors as being wider than just the need to acquire computing knowledge. The Course B tutors considered that many of these students, after having being isolated in their own homes for perhaps several years, needed to develop or regain certain attitudes which would be necessary for obtaining and keeping any future employment. For instance, several of these students needed to build up their self-esteem and to re-learn how to interact with a variety of people. These attitudinal learning needs meant that coffee breaks and club activities were seen as being important learning times for the students. Interestingly, later on in this report, we shall discuss how the Course A students would have appreciated the provision of some similar activities by their tutors as they saw such times as being beneficial for their learning. The Course A tutors' aim was entirely focused on the need to teach computing. Table 2.1 overleaf lists the various methods used for achieving the differing aims of the two courses. These methods are similar, though Course A is more formal in that there is a greater use of lectures and no provision for social activities.

Table 2.1: Teaching methods used

Evening Course A	Full-time Course B
Students reading handouts on the session's activities.	Students reading handouts on the session's activities.
	Brief talks interspersed with oral computing instructions for the class of students to carry out on their machines.
Thirty to forty minute lecture at most sessions.	Occasional lecture.
Visual aids - overhead projector with slides.	Flip chart, pop-up book on computers.
Students doing practical exercises on their own machines for the major part of the session.	Students doing practical exercises on their own machines for the majority of the session.
Individual help for the students from the tutors and a technician.	Individual help for the students from the tutor.
'Open' session - students select their own activities eg revision/project work, games.	'Open' sessions - students select their own activities eg revision work, programming, computer games.
	Social activities eg club, parties, coffee breaks.

For the start of each of the first six sessions of Course A, the tutors gave the students handouts on the topic to be covered that evening. These contained information, examples to work through and further exercises. Then one tutor provided a lecture consisting of revision on the previous week's work and of an introduction to the present evening's work. This was backed up by the use of slides on an overhead projector. For the second half of the session, the students worked through exercises on their own, receiving individual assistance when necessary from the tutors and a technician. During the last two sessions, the tutors offered to the students six different projects based on the work covered on the previous session and a choice of games. The teaching of all these sessions had been obviously carefully planned in advance so that the course content was clear to the students and there were plenty of exercises on hand for the quicker students. (A further description of the course is provided in Appendix A).

For Course B, the tutor started most sessions by giving the students a handout on the day's topic which would include information, practical exercises and revision questionnaire sheets. He allowed them a little time for reading through these notes. Then he gave a brief talk elaborating the

information on these sheets. He interspersed his brief talks with instructions for the students to carry out on their machines. Next the students practised the exercises by themselves whilst the tutor went round giving individual help. When they had finished these, they filled in the questionnaires and marked them by checking back on the information sheets. The tutor looked at their answers. About twice a week, he gave them a lecture on computers using various visual aids, such as a flip chart, the inside of a computer or a pop-up book on computers. Some of the students' time was spent on individual activities, such as using a teach yourself typing disc, copying sections from a student's library book, playing computer games, working through the computer manual or further practising and experimenting with those parts of the course which most interested the student. The tutor insisted that all the students had morning and afternoon tea-breaks as he thought it was bad for their health to sit at the machines for too long and as they were there to meet other people as well as to learn about computing. (A further description of the course is provided in Appendix B)

We have presented a brief description of the main teaching methods used on the two courses: the slightly more formal approach of the evening class - lectures supported by handouts and slides on an overhead projector followed by practical exercises for the students, the less formal approach of the day class - brief talks interspersed with practical activities for the students; self-selection of computing activities and social activities - which was partly due to the smallness of the class and to the undergoing changes in terms of aims and content. We now turn to the question of how effective the teaching methods were. As indicated at the beginning of this chapter, we have no independent measures on the effectiveness of various teaching methods. We are reporting the students' and the tutors' perceptions of effectiveness. We also indicated earlier that we had no preconceived notion of what effectiveness might mean. It could range from learning what was intended, to harder-to-measure effects, such as increased self-confidence or the gaining of a sense of purpose in life. Our data from the students and tutors in these two computing courses suggest four main dimensions of effectiveness. These are learning about computing, developing an interest in computing, enjoyment and gaining self-awareness.

EFFECTIVENESS AS LEARNING ABOUT COMPUTING

Clearly, an overall intention of students and tutors in both courses was that students should learn something about using a computer. Students felt that they had indeed learned something about computers as the following students testify:

> I was delighted that the course was what I was looking for. (Course A student)
>
> It was very good of them to do the course and I thought they did it very well. I would go back tomorrow if I could. (Course A student)
>
> Good, because I've not done computing for a long time. (Course B student)

> I didn't think before (I came on the course), I'd be able to work with computers - wouldn't think I'd have the ability - but I'm managing fine. Feeling more confidence. (Course B student)

The tutors in each course had a very similar approach to teaching students. They felt it was important in a beginners' course to try to reduce students' probable fears if using a computer. Their ways of doing this were to provide plenty of 'hands-on' experience, establishing friendly relationships between tutor and student so that students would not feel reluctant to ask for help and if possible, providing user-friendly equipment. Once students had developed confidence in using the computer, the tutors believed in encouraging them to experiment and discover for themselves. The tutors saw students' learning, therefore, in terms of a hierarchical progression as follows:

- introduction to the machines through straightforward practical exercises (what we have called feeling at ease)
- familiarisation with the machines (plenty of hands-on experience)
- discovery and experiment

We can consider each of these stages in turn.

a) Feeling at ease

(i) Choice of equipment

For Course A, the tutors had been able to choose a type of computer which they considered was the easiest to use and so was particularly suitable for beginners. It meant that from the start of the course, the students immediately felt at ease. Moreover, there was little need for the tutors to perhaps undermine students' confidence by constantly helping them with computing errors. They justified their choice of machine:

> The main aim is to get people comfortable with the machines.

> You don't want to start telling them off in the first few weeks. For computing courses, I think it is a crucial question that you choose the right equipment, something that is easy to use.

> I think you (the researcher) missed the magic of the students coming off the street, not having a clue, and within two hours they were getting somewhere and although the following week they said that they could not remember, they were in fact doing it. They were the world's best mouse-clickers. That says a lot for the machine.

The students appreciated the ease of use that this equipment gave. Here is one of their appreciative comments:

> This course demonstrated a new form of computing, user-friendly - graphics rather than commands, human orientated. This technology has been chosen by the people for the course - I found it user-friendly.

Course B tutors did not have the same opportunity to select their equipment and in fact, their teaching was somewhat hampered by a lack of equipment. Nevertheless, they managed to put their students at ease too by other means as we discuss below.

(ii) Student and teacher relationships

Because of the less adequate equipment on Course B, the tutors perhaps had to rely more on their relationship with the students for putting them at their ease. This is, of course, not meant to imply that the tutors on Course A did not also establish good relationships but simply that they also had the advantage of being able to supply user-friendly machines for their students. For both courses, tutors and students considered that it was important that relationships should be as equal and informal as possible even if it was inevitable on a beginners' computing course for the tutor to be very much the expert and for the student to be a novice.

On both courses, the students liked the informal atmosphere, which they also considered helped to make them feel at ease:

> I'm enjoying it personally - it's very relaxed but there's obviously a set syllabus.
>
> I liked the relaxed atmosphere. There was no formality. The last thing you want from an evening course is to feel that you are being lectured at.

The students realised that it was difficult for the tutors who were so familiar with the computers, to bring themselves down to the level of beginners. Their comments on student/tutor relationships, however, show that many of them considered their tutors had been successful. The students commented favourably on certain qualities displayed by their tutors, such as a respectful attitude towards students, approachability, calmness and a sense of fun:

> This was contact at a realistic human level. We were interacting on a reasonable and respectful human level.
>
> You need to be an expert to help with people at the idiot level. The tutors were prepared to take me seriously, to realise that I wanted to understand and organise my learning. I was taken seriously. I was not dismissed as stupid or neurotic or for being regarded as whimsical or capricious.
>
> I think it was a more effective course than the night course (I went to) probably because the tutor was more accessible - his manner was more approachable.
>
> He's calm, he's easy, he's a nice person.
>
> He brings us together for answers. He explains things and jokes - he's an excellent teacher - he puts a bit of life in it.

A tutor described how he endeavoured to play down his expertise and so establish a friendly relationship with his students:

> Psychologically, trying to be as accessible as possible to the students, to let them know I'm not a tutor, I'm one of them sort of thing. I'm not to be held in high regard, praised and held on a pedestal.
>
> With people that come on to the course, I try and joke around a bit - to take away the barrier a bit because there's always a barrier of 'us' and 'them'.

Nevertheless, even though the tutors did endeavour to come down to the level of their students, some students still felt that there was a tendency for tutors simply to correct the students' errors without fully explaining how the problem had come about in the first place. Others felt that the tutors' familiarity with the machines caused their demonstrations to be too slick for students to follow:

> Some students hold back, they are nervous - they don't ask enough. Some try to make it look as though they understand, but are not really too sure. The tutors need to be aware of this.
>
> To them (the tutors) it was like eating and sleeping, they knew it backwards, forwards and sideways. It was difficult for them to put themselves in our shoes. They showed you different ways of doing something. They were possibly demonstrating too quickly. How did they do things? We never saw how to get out of a mess. We perhaps needed to go slower.

b) Plenty of 'hands-on' experience

For both courses, the tutors had purposely given the content a narrow focus. Course A had three main topics, text processing, graphics and spreadsheets. Course B was intended to supply students with some word processing skills. One Course A tutor explained the rationale for the choice of content:

> You are trying to give them enough practical experience to feel comfortable and at the same time you want to give them an idea of the range - there is a balance there. You can introduce them to a wider range, but the experience will be more shallow.

For learning how to use a computer, the students and tutors saw the use of practical exercises as being invaluable. On both courses, most of the time was spent on the students working at the machines. This was possible to achieve because there was one machine per student. One student thought that this emphasis on hands-on activities was a particularly suitable approach for beginners. He felt that such students would soon become confused if they only listened to talks on the subject. His tutor considered that for computing, students did not really understand unless they actually used the computers:

> If I'd been a beginner, it would have worked well because he gives you a lot of time working with the computers, you're not sitting there bogged down with people talking about rods and rams. There's plenty of practical work. (Course B Student)

> You learn by doing - particularly on this course. People don't actually understand things until they actually sit down and do them for a while. (Course B Tutor)

One Course A tutor, though, thought that talk might increase an understanding of computing but would not help to build up a student's self-confidence:

> If you just talk to them it may increase their understanding but it won't increase their self-confidence.
>
> What we are trying to do is to give them a practical experience of computing - what machines are capable of and what they are not capable of. Therefore, the less time that we talk and the more time we can let them use the machines is important.

Although the students and tutors felt that this emphasis on practical work was beneficial, they also considered the other courses activities, such as reading through course notes, listening to introductory talks, answering revision questionnaires and watching slides on the overhead projector, as being helpful for their learning. This was how Course B tutor explained his rationale for using these different approaches:

> I do suggest beforehand, when I hand out the module notes that people read through them first so they get some of the flavour of what they're going to be doing; then me talking them through it, then getting actual hands on practice on the machines - three different levels, reading about it, hearing about it and then doing it. The hands-on is the most important.

A student perceived the two activities, doing and reading as helpful when used in conjunction:

> For this type of thing, I learn by doing and reading, both. I find the sheets useful for reading after doing. I do it, then I read and I understand it.

Some of the evening students wished that there could have been additional time for practising on the machine. The tutors, though, did not consider that this was practical as they could not see many students wishing to give up any further free time. The full-time students had plenty of time for practising. Some, though, were more willing than others to make use of this time. The possible reasons for this are referred to in the following chapter.

Helping students to feel at ease with the computer was enhanced by a low staff-student ratio which made one-to-one help possible. Of course, each student having a machine also helped:

> Not boring - We don't have to wait for the others.

> You get individual help rather than the group. The tutor comes round to you personally if you have a problem - that's good.
>
> Handy how you could go at your own speed, I could catch up after being off on Monday afternoons. Handy also having someone there if you did have trouble.

The tutors, too, considered that solitary learning was the most appropriate approach for computing. One tutor said that this gave him an opportunity to build up a relationship with the students which, as we saw above, was also important for students' learning needs. Moreover this tutor felt that students' concentration was sometimes poor during whole class sessions:

> Better handle (students) individually rather than in a group - you notice sometimes if you're talking to the group, that some people's attention is wandering.

The students on the day course sometimes tried to help each other but the tutors and a student thought that this form of self-help was only useful for small problems. Occasionally such help only added to a student's confusion:

> They can pull in support from their fellow students if there is a small problem and they don't feel they want to ask the tutor or if the tutor is busy.
>
> Sometimes they try and help someone and they don't realise that the person is having great difficulty and that they are making it worse by just saying, 'Oh, you haven't done this yet'.
>
> But I want to learn from the teacher. Because when A (another student) came over to help me do something, it wasn't exactly what the tutor had done - very confusing. I don't mind a little bit of help from them but I'd rather learn from the instructor - I feel you learn better that way.

Some students on both courses felt that they had not had enough individual support. This point will be taken up again in Chapter 3 in the section on composition of the class.

c) 'Discovery' learning

By the use of these various approaches, such as individual help and plenty of practical exercises, the tutors hoped to so increase students' confidence that the students would feel in control of the machines rather than the reverse. This was how one tutor described this aim and how one student reacted when he reached this stage of feeling in control:

> To bring computers down to the level of the student, rather than bring the students up to the level of the computers. (Tutor)
>
> Understanding computers are just machines and you're the boss! At first you're intimidated by them until you realise, you order them. (Student)

Once students had reached this stage, the tutors hoped that they would then go on a stage further and experiment with the computers:

> What we are trying to do is to get them to use the machines - giving them the minimum necessary to use that machine and the confidence to do it. To get them to the level where they are happy experimenting. To give them a sufficient base, then hopefully they will teach themselves. We are trying not to teach them but to get the machine to teach them, because that is what is going to be of use in the future. Specific knowledge that they gain is not going to be of much use, more important is if they can gain an aptitude to learning - an attitude of enquiry.

The students appreciated being given this opportunity for making discoveries about computing for themselves:

> The advantage of this course - when in college, we didn't learn all the functions - advantage here, Y (the tutor) lets us see what happens, he lets us experiment with the computers, he lets us see what happens if you press the various keys - he's right in doing that.

EFFECTIVENESS AS AN INTEREST IN COMPUTING

All the students on both courses professed an interest in computing. Did their experience on the course sustain and develop their interest? There are different answers to this question depending on what kind of interest individual students had and how well informed they were about the nature of the course.

In Course A, the evening class run by the University, just over half the twenty students attending, had a vocational interest in computing. They saw computing as useful in the future. These students considered that the knowledge they had gained could be used in their work. Many of the other students on the course were there because of a curiosity or fear about new technology and, as we have seen, the course was successful in allaying such fear. Other students again, wished to broaden their horizons while others were interested in anything about computing. Course A seemed to be successful in catering for these different kinds of interests and only three out of twenty students gave up the course. This may have been due to personal reasons rather than to a loss of interest in the type of computing experience being offered.

Course B catered for a mixed range of interests too. The main focus of the course was word processing and many of the students hoped that this would be useful in a search for work. The course, therefore, was seen as sustaining a vocational interest for some students. Other students, however, had been interested in programming, not word processing. They quickly lost interest in the course, demonstrating the need for better information about the course and better guidance for the students. In this case, vocational interests were not met. Some students, mainly those who already possessed a computer at home, had both a vocational and a personal interest. For example, one unemployed

student saw word processing skills as being useful for the book she was writing and for the small business she hoped to set up.

In general, then, the picture of effectiveness in sustaining and developing interest in computing is rather mixed. Course A seemed to be better geared to the needs and aspirations of the students than Course B. Through no fault of their own, tutors in Course B found themselves teaching students who had no wish to be there and so the job of sustaining interest was much more difficult than in Course A where all students were volunteers. Even in Course A, however, interest ranged from wanting to do more computing courses to being satisfied with what had been learned but not wanting to continue studying in that area.

EFFECTIVENESS AS ENJOYMENT OF THE COURSE

In some, but not all of our earlier case-studies, enjoyment emerged as a dimension of teaching effectiveness. This dimension appeared salient for all the students on Course A. But very few students on Course B referred to feelings of enjoyment. We consider each of the courses in turn.

Students on Course A had completed a course evaluation sheet designed by the tutors and had all responded affirmatively to a question about whether or not, the course had been enjoyable. In our interviews, the students were asked to elaborate on what they meant by 'enjoyment'. In many cases, it seemed to be associated with feelings of achievement or of increased confidence. Some saw enjoyment as being an aid to concentration and so beneficial to learning. One student maintained that this learning was enjoyable because, unlike learning at school, it was a matter of choice rather than of compulsion. Another student had found the enjoyment came from using efficient equipment. Here are some examples of their comments:

> For the adult it's just the change from the normal routine, when you are studying you are doing something different. When you studied at school you had to, now you are studying because you choose to. It's very difficult to put into words. Even if the course is difficult you might still enjoy it. It's a challenge, everything is new, new concepts that you can tackle. Finding out that you can cope, it gives self-confidence definitely.
>
> I enjoyed it because I was not confused. Also, I could understand it, it was not beyond me, I could actually understand, I did not get upset. I could see the point of being asked to do certain things.
>
> You are going to pick up a skill much more quickly if you enjoy it. Your interest is total - it's like captivation. The equipment was pretty captivating anyway. To me with a background in typing it was absolutely beautiful what it could do. I had admiration for the equipment.
>
> If you enjoy it you remember things. If the guy stands up and tells you what to do and you discover that you can do it, then there is a sense of achievement. If you

enjoy it your interest is going to be there and therefore your concentration is going to be good. You will start to achieve.

Interestingly, these comments seem to perhaps encapsulate some of the possible reasons for the lack of the use of the word 'enjoyment' by many of Course B students: several of them did not really feel that they had chosen to come on the course. The equipment was not so advanced technologically. Some students felt that they had achieved little because they were not interested in word-processing or because they were not the beginners for whom the course had been especially designed. These possible constraints on enjoyment will be referred to again in Chapter 3.

The type of student probably had some bearing on the dimension of effectiveness as enjoyment. Course A students were mostly in professional jobs and were seeking to apply the computing knowledge that they had gained from the course either to improving their workplace or to furthering a hobby at home. The Course B tutor pointed out that some of his students had been made redundant by the installation of computers at their work. Few owned a computer or felt that they would ever be in a position to do so. Many were not sure that they would be able to use the computer knowledge that they gained from the course, for getting a job. It is, therefore, not surprisingly that the word 'enjoyment' did not feature so frequently in their interviews.

For Course B, one tutor deliberately made use of 'fun' and 'enjoyment'. He considered that for some students, it was boring to sit in front of a computer all day so they needed to be enthused. As we have already indicated, he also considered that this humorous approach helped to break down barriers between tutors and students. One student felt that the frequent use of 'fun' by one tutor and the less frequent use of it by the other tutor was just a matter of manner and had had no effect on his learning. Thus, all we can really say is that 'enjoyment' appears to be an important element for some adults whilst for others, it seems to be of less or of no importance.

EFFECTIVENESS AS GAINING SELF-AWARENESS

The students indicated that during these courses, they had gained something of value apart from learning about computing itself. These gains included - becoming accustomed to being punctual, to interacting socially, a widening of horizons or a realisation of the value of studying. This dimension of effectiveness which we have designated as gaining self-awareness, was particularly noticeable amongst Course B students. Their tutors and co-ordinators saw learning about computing as being only a part of their unemployed students' learning needs. The aim of the course was to introduce beginners to computers but 'the overall aim is to get them (the students) back into employment'. To achieve this aim, their students needed to learn or re-learn certain attitudes. For instance, they felt that such students, who were frequently isolated in their own homes, had lost the ability to interact socially with other people and this was a skill that they would need in an office. These students on the whole were not used to being punctual and active for long periods of time. Moreover, such students had lost a lot of self-confidence, so this, as well as confidence in using computers needed

building up. This was one tutor's description of the students' learning needs apart from the need to learn about computers:

> Some of the other things that are important for the student, a lot of them it's getting back into the way of getting up at a specific time in the morning, getting back into a work situation or into a near work situation. Having interaction with other adults, some of them you find have been on social security, unemployed for a long period of time, and the only people that they actually talk to are a few friends and their family and they've had no practice of meeting new people. That comes into the confidence as well and their own self-esteem because as they gain that, they begin to think, 'I'm not doing so badly here'.

The students' comments indicated that they were aware that they were acquiring these attitudes as a result of attending the course. For instance, several students felt that their attendance had helped them to get into the way of being punctual, to taking breaks at specific times or to staying awake. They perceived this as being beneficial for their preparation for future employment. This is how two students described this benefit - the second student became disabled two years ago:

> Being punctual. If you've been unemployed for long - it's like being in college - go in time, break at certain time - not just when you feel like it.

> My biggest fear (if I become employed again) would be sort of getting up in the morning, being able to stay awake during the day and doing the job. I feel I'm beginning to get back to my old self when I did do a job. I can stay awake now. It's just sheer boredom at home - it means that you do just go to sleep. You're watching the telly, you've nothing else to do. What you could do was very limited; you sat in the chair and sort of dozed off. That was it!

Other Course B students considered that they had learned to mix with other people again or were more aware of how their behaviour could effect other people. For instance, the first quotation demonstrates how a professional man considered that he now had a better understanding of his employees' needs.

> I am learning also what it means to do a routine task - some idea of what this involves psychologically for people. Makes you appreciate what you're requiring of people, the stress you are imposing on them.

> I'm talking more - usually I'm at home quiet all day by myself - apart from talking to the cats! I'm getting to know people - I don't know many people here in town.

Through socially interacting again, other students had gained more self-awareness of certain personal faults which hopefully, they might be able to rectify when they return to employment:

> The course has taught me alot about patience - which I didn't have very much of before, patience with myself and patience with other people.

I tend to mess about sometimes, I don't know why.

Other students felt that their attendance on the course had motivated them to continue learning though not necessarily on computer courses. There was a feeling of some increase of self-esteem in these two students' perceptions of their future vocational plans:

> If say I was ever caught up again in what I've been doing in the last few years, being unemployed and doing nothing, if that happened in the future, I'd be more inclined to go on a course again - do something rather than not do anything.

> Four walls syndrome - sitting in the flat doing absolutely nothing - you find yourself wasting away. The course has stimulated me. How to get into a kind of lecturing, kind of learning basis all over again - back to study, which has given me thoughts of going back into full-time study again. The course has made me more motivated - other people have seen how I'm getting on who are not involved in this. Friends of mine say, 'Whatever you're doing it seems to be pretty interesting, you've got your brains in first gear again instead of just sitting down in the bar, downing pints.

The Course A students did not come up with these types of remarks so frequently, perhaps partly because it was an 'interest' rather than a full-time commitment to training. Moreover, it was understandably not really their tutor's aim to give them learning not directly related to computing. Their needs were not the same as the unemployed students. Not surprisingly then, most of Course A students' remarks about confidence referred to confidence in using computers rather than confidence in terms of self-esteem. There was one unemployed person however, who was seeking to have some sense of structure to his life and so had joined the course. Other students felt that they had widened their horizons or improved their minds by trying something completely new:

> I was unemployed, looking for work, had absolutely no schedule to my life whatsoever.

> So, having given up employment I thought I ought to do something to improve my mind a little bit. This is one thing I thought I would do. It was something I had not done before, I was expanding my horizons. I don't particularly want to go on in this field. It hasn't put me off, but it hasn't turned me on either. I feel that there are many other areas to explore.

SUMMARY

This chapter has been concerned with the teaching methods used on two introductory computing courses and perceptions of the effectiveness of these methods. The students liked having plenty of practical activities with individual tuition from their tutors. They felt that it was important that the relationship between students and tutor was one between equals. Most students had come to the

courses with an interest in computing for personal and/or vocational reasons. They considered the courses had helped to maintain and sometimes further stimulate this interest. The evening course students maintained that their learning had been enjoyable whilst several of the day course students felt that they had learned some vocationally useful attitudinal skills. The students talked about effectiveness in terms of learning about computing, as having an interest in computing, as enjoyment and as gaining self-awareness. If a major factor affecting teaching effectiveness is the methods used, then our data suggest that there are subsidiary factors too. We consider these in Chapter 3.

3

FACTORS SEEN AS AFFECTING TEACHING

INTRODUCTION

In this chapter we try to identify the factors constraining and promoting the effective teaching described by the students and tutors in Chapter 2. In that chapter, we indicated the methods of teaching which the tutors and students identified as being effective. The students found plenty of hands-on experience with the computers backed up by individual support from their tutors particularly helpful. Thus the students felt that teaching was most effective when:

1) there was one machine per student

2) there was plenty of individual support from friendly tutors

3) there were back-up materials such as well-written handouts, slides on a projector, course books and computer manuals.

Through this teaching, the students felt more at ease with the computers. Their tutors had managed to demystify some aspects of computing for them. So some students became willing to experiment with the machines and eager to go on to do other computing courses. If we think of the teaching methods used as a major factor affecting the effectiveness of the teaching, are there subsidiary factors which influence teaching effectiveness? Our data suggest at least six subsidiary factors:

- guidance and continuous support
- the composition of the class
- student isolation
- tutor isolation
- resources
- evaluation /assessment

GUIDANCE AND CONTINUOUS SUPPORT

There were considerable contrasts between the comments of the students on Course A and those of the students on Course B about their motivations for taking the course, about their foreknowledge of course content and the benefits that they felt that they had derived from attending. On the one hand, Course A students seemed well motivated and mostly were satisfied with what they had gained. On the other hand, some students on Course B were resentful about being on the course and were not satisfied with their learning. As we shall see, this disparity highlights the need for greater care over the provision of guidance for adult students. Let us now consider some of the reasons for these contrasts.

First, how and why did the students come on these courses? For course A, the students had decided for themselves both about joining the course in the first place and about continuing to attend. Most of them had come because of a personal interest, such as a wish to extend themselves or to overcome their ignorance of the subject. Several hoped the programme would have some bearing on their work. Half the students had received the University brochure which described the content of the course. The remainder had chosen the programme either through obtaining information from the Extramural office, or from the local library or through seeing an advertisement in the local paper. 20 registered for the course and 17 continued attending until the end of the course. In answer to a question on an evaluation sheet designed by the tutors, asking if the course had been what they expected, over half the students replied affirmatively. Two said that it had exceeded expectations. No-one stated that they had been disappointed or misled.

The tutors for this course emphasised the importance of giving students clear information and guidance before the start of the course. The course was intended for students without previous experience and this, they felt, should be contained in the course prospectus. If a programme did not seem suitable for students when they 'phoned in to ask for advice or details, then the tutors would suggest that they did not join the class. This was how they described their methods of providing pre-course guidance:

> One of the things that we spent a lot of time on before the course was getting the right wording for the course description in the manual. In this we stress quite strongly that the course is not for people with previous experience.
>
> We have people 'phoning up before the course who are looking for specific help, say with a new machine which is not (the same as we use), and we have to tell them that we don't think that the course is right for them. It is very important to make sure that people end up on the right course.

The tutors felt that it was important for dealing with students that there was close liaison between the co-ordinator and themselves. Thus, if those at the Extramural Department offices were unable to answer a student's questions about the course, it was helpful if they quickly passed the problem onto the tutors. Even though the tutors had taken this care, many of the students on the course had had some experience of computers. One student had considerable experience, a degree. But as we have just pointed out, the majority of the students had expressed satisfaction with the course so perhaps it was rather a 'high powered' beginners course. Had the students come on it because they expected that from such a provider? Or was there no other course available which would be more suited to their experience? In a following section on 'the composition of the class', there is some discussion of the dissatisfaction felt by a few of the beginners.

As we shall now see, this motivation for attending, and satisfaction with Course A, contrasts with the resentment and dissatisfaction expressed by several of the Course B students. For instance, one Course B student admitted that he was there because he was worried that he might lose his social security benefits if he did not undertake some form of training and as he had two children, he did not

feel that he could risk such a reduction in living standards. He was not entirely clear as to how some of his learning on this course related to his previous work experience. Therefore, he did not understand how such a course was going to help him return to work after many years of unemployment. This was how he felt that his involvement on the course was not entirely voluntary:

> I've been unemployed since 1983. I got word from the Job Centre to go (to this course). It's not compulsory but it is! I was worried about benefit cuts - you're under the impression - everyone's the same - if you don't go on these courses, they're just going to chop your benefit off.

Two other students admitted that they had come because they had been 'sent' by a trainer from a scheme for the unemployed. They did not know anything about the course and the person who 'sent' them, had not realised that both had some knowledge of computers already. This does not seem an appropriate way to encourage adults to participate on a course. Here is how they described their involvement and disappointments with the course:

> I was told to come - no choice. What I really want to do is computer programming. I didn't know what to expect - just told, 'You're going up to (the course) next week, ok?' Well, what was I supposed to say? It was better than sitting around doing nothing. What they're teaching on this course, is what it would be like typing information into computers - insurance, things like that - doesn't interest me.

> Well, I didn't actually know what the course was going to be about when I first came. I was just told to go on a course at ... If I'd known more about it, I probably wouldn't have been so keen to come as I've done it all before!

The co-ordinator and tutors felt that the students who were currently coming on Course B, were not as highly motivated as their former students. The co-ordinator pointed out that although unemployed people were not compelled to attend such courses, nevertheless several felt, just like the student we have mentioned, that they were being forced to come and she considered that this feeling of compulsion adversely affected their learning. She and the tutors described the difference in motivation between their present and their former students in the following terms:

> The type of student and attitude of student we had on the voluntary training programme is totally different under ET. They have to come here to learn but it doesn't mean they necessary actually want to learn.

> It's the will to learn, it's the pleasure in learning something new. Despite the fact that under the voluntary project they didn't get paid for doing it, they had to fork out their own personal money for travel etc but they came because they wanted to - we had volunteers. Whereas with this, the compulsion is coming in, 'I've got to be here or I'll have someone at my door'. It may not be in black and white but that's the inference.

Most of the students coming on these courses are meant to have had a lengthy assessment interview at a Training Agency before going onto any Employment Training (ET) course. This is supposed to give them a clear idea of where they are heading vocationally. These details are entered on their Individual Action Plan forms. But some of the students admitted that they had received only a five to ten minute interview. They could not see how this course would relate to their future vocational needs. For instance, one student had said at his interview that he wished to be a librarian. He could not understand how this course would be helpful for that. Others said that they had wanted computer programming rather than word processing. Moreover, this course was intended as an introductory course, yet eight out of the eleven students already had some computing experience. In the section on the composition of the students, we shall see how these experienced and frustrated students created problems for the tutor's teaching of other students. Here are two students' comments on their pre-course guidance which show that it was not really sufficient:

> Just five minutes. (length of interviews) I just said I'd never done any computing - there was never any need for it in warehousing.

> What I need now is a careers teacher, someone who can give me advice. No-one's actually advised me. I need a careers teacher to tell me what sort of job it will lead to. I want to use computers but in what aspect do I want? So I know what I'm doing.

It was fairly clear from the students', co-ordinators' and tutors' comments that the assessment interviews were not conducted thoroughly and that the Individual Action Plans were not being fully implemented. This was a pity as the teachers considered these plans were a good idea for such students. They commented on the lack of implementation of these forms of guidance:

> To be honest, a lot of the people that are coming to us now, have gone to a Training Agency and they are meant to have had two and a half days assessment before they come to us, sitting with a person at the Training Agency, going through their Personal Action Plan, and knowing exactly what's going to happen on this course etc, etc. What's been happening so far is students have been getting ten minutes, a sort of ten minute interview, 'Oh, yes, you want computers - I'll put you down for computers,' and that's it.

> The idea of the Action Plan - it gives them a goal for the rest of their life. It isn't just what do you want to do for the next six months but what do you want to do for the next six months which will help you to do what you want to do for the rest of your life. It's a very important document and to dismiss it in ten minutes is, I think, inexcusable.

Prior to Course B being taken on by a private agency, the co-ordinators and tutors had adopted a holistic approach to their students' needs. This included pre-course guidance, continuous guidance for vocational and social problems and follow-up help, and support, such as advice about other

courses, a newsletter and social activities. The tutors' and co-ordinator's comments showed that they considered this holistic approach, which was in a way replicated in the assessment interview and the Action Plans, was being eroded. In the past, the co-ordinator had given students a lengthy interview so students knew before they joined the course, where their training was going to lead them. This was not part of the present remit of the co-ordinator. A lack of guidance, meant that it was difficult for effective teaching or learning to sometimes take place. The tutors were endeavouring to cope with several disgruntled adults. Hopefully as the ET scheme was at a very early stage, these problems with pre-training interviews and Action Plans will gradually be overcome.

COMPOSITION OF THE CLASS

a) Previous computing experience

The composition of the two classes as far as previous computing experience was concerned, seemed to have an adverse effect on the learning of the students. Both courses had been designed for beginners and yet, on both courses, as we have seen in the previous section on guidance, there were several students with some previous computing experience. On Course A, a third of the students had some contact with computers at their work whilst one quarter had a machine at home. On Course B, six students were working full-time on computers at placement schemes for the unemployed. Three of the younger students and two older students had attended computing courses. This wide range of experience meant that some students found the course was too easy whilst some of the beginners felt confused or left behind. Such students wished for more individual help or for more time to practise. Two Course A students said:

> I needed more time to assimilate, but there was a shortage of time. I don't know how you could do it, maybe other people found it easy. I would have found it easier if we could have had more recall on the next week, some of it was all right, some a bit of a jump.

> I think that they were trying to cover too much ground in too short a time. That course could have lasted a whole year - a term for word processing. I think that they compressed and have gone on to things completely different without sufficient time to master the basics. I would have been baffled by the word processing had I not had previous experience. They seemed to go in big leaps. However, most people seem to have kept at it.

Their tutors seemed to be aware of a problem with the composition of the class though they seemed to see it mostly in terms of a range of ability. They thought that they should either take this into account more when designing the course or that perhaps a more advanced course should be developed for such students as there did seem to be an ever increasing demand for computing courses.

One tutor said:

> Ability is difficult. You don't want to bore the ones who are getting on well. Maybe we could think of this problem more when constructing the course.

The Course B students thought that the mixture of inexperienced and experienced students created problems both for their learning and the tutor's teaching. The experienced ones got bored waiting for the slower inexperienced ones. To keep the experienced ones busy, the tutor had to keep thinking up new activities for them. This, the less experienced students maintained, meant that he spent too little time with them. The tutor was constantly having to move to and fro between the experienced group of students and the inexperienced group:

> We've all done computing before - he's got to jump between us both - keep everyone amused.

> Problem - trying to find things to do while you're waiting on everyone else. A lot of waiting.

> Several students here are more advanced in computers than we are - three of us didn't know anything about computers when we came to this course. Most of them are trained in computers or have worked with computers before and know far more about them than we do. I felt a lot of time was wasted with them because they were doing their own sort of thing with computers while M and me were trying to learn the basics - we were not able to do that because the tutor's time was taken up with these other ones.

The students on the first running of Course B had all had some computing experience before and that was why one student felt that there was a good class atmosphere:

> I think we got on well together because we're all learning, no-one's more advanced.

The problems of mixing complete beginners with the experienced and of mixing slower learners with quick learners was only a temporary problem for this course tutor. Once he and the students were in the new premises, it was going to be possible to transfer students onto more advanced courses as soon as they were ready. In the past, the tutor had not needed to cope with this range of experience and so he did not have the materials ready for them. Formerly, the co-ordinator had grouped the students into compatible groups and experienced students would have gone straight on to the more advanced course. The present students felt that the tutor had managed to cope fairly well in dealing with the problem. For instance, he suggested that the experienced students designed a quiz to test the computing knowledge of the less experienced students:

> Some of the others were a wee bit annoyed because he spent so much time with us - we were ahead - there was a wee bit of a burst up - so he brought us all back together again.

b) The range of ages

The mixture of ages was not perceived as having an adverse effect on learning by either Course A tutors or students. Lively contributions by the younger students were appreciated by the older students. The latter felt that the younger ones tended to ask more questions. As we have already indicated in Chapter 2, the students on Course A would have liked more opportunities to mix with one another. One student described the benefit of being in a mixed group:

> I like working with a mixture of people. With a mixture it is interesting to get other points of view. It helps to put into context what you know and what you are ignorant of. It helps one to utilise other people's experiences.

Their tutor said: 'I don't find the age range difficult'.

But interestingly, there was some feeling of animosity between the younger and older Course B students. This might have been due to the different age range of these students which was from 18 years to the mid-50's. In comparison, the 'younger' Course A students were fairly old, 30 being the youngest. Course B was the only instance in our case-studies of students expressing a dislike for the mixture of ages and it may have resulted from older students feeling at a disadvantage because of the greater computing experience of the younger students. We have already seen how a wide range of such experience within a class can adversely affect learning. This was certainly thought to be the case by one older student who said that the main trouble with having younger ones on the course, was that their computing experience from school put them at an advantage over the older ones:

> I find I'm a lot slower at picking it up than the younger ones who have done some before.

One young student felt that he had few computing interests to share with the older students. Another young student missed the competitive atmosphere of school:

> I like to be with adults but I sometimes feel I'd like to be with the same age group - like K he is the only one the same age as me. It's a good laugh, you've got the same interests and that. What I like to do, they don't like to do really. Like I think it's only me and K that share the same interests - we like making programmes up.

> I like to work with other people - competitive - so you get along faster. Possibly because I've come from a school environment - forced to learn - it's just nature. So when you go to college or this place, it feels funny when someone's not always testing you or asking you questions on what you've done.

The co-ordinator saw the two age groups as being slightly antagonistic towards each other and felt that it was difficult for adults to admit to a lack of knowledge because in our society being adult meant knowing nearly everything:

> The older ones didn't want to be made to look idiots in front of the younger ones; the younger ones didn't want the wrinklies in with them - they felt that they would be held back or to be felt put upon because they were younger - particularly some of the people we have - the clothing and the hair styles etc - punk - felt they were being got at because of their dress.
>
> This is a problem compounded with the fact that people are unemployed. Some one in the 30's, 40's who missed the computer revolution in school, feels embarrassed. I feel embarrassed when involved in a subject I know nothing about and I'm trying to learn about it, 'I should know this!' In some cases, people can feel extremely humiliated. ... children don't care if they don't know it - they don't loose face if they don't know it.

The tutor felt that the older ones were better learners than the younger ones. From our observation, they seemed more willing to keep practising than the younger ones. As we have seen, practising was seen as a necessary learning need for these students:

> I certainly find that the older ones tend to stick at it more - maybe because of unfamiliarity with the technology whereas some of the younger ones already have had some experience of computers at school - even if one amongst thirty pupils!
>
> I've found some of the older ones are, actually while they're slower at learning, they seem to learn better. They seem to take it in more although they may be slower in actually doing it but they are there - eventually, in the end. When it does sink in, it seems to sink in deeper!

One Course B tutor considered it was difficult for older students to feel so motivated about learning computer skills as computing jobs tended in his view to be given to younger people:

> Some other students - one in just now, older than all the rest and he feels that he'll gain no further job prospects, and that this course is great fun but it won't do him any good because he's at an age when no-one's going to take him on anyway. That sort of attitude you've got to do your best to change it but it's difficult because on the one hand you're saying, 'Don't think that', you're trying to enthuse them all and on the other hand, your thinking - 'well this bloke's 50 odd (years old) and he's got no other experience except in a totally unrelated trade and jobs in computers tend to be for the younger set - it's difficult'.

STUDENT ISOLATION

In several of our case-studies, students and tutors have stressed the importance of giving students opportunities to mix with other students within teaching time and/or during social activities, such as tea-breaks and visits to the theatre. They mentioned several benefits deriving from this interaction, for example the mutual exchanging of ideas and of problems or an increase of communication skills. The Course A students considered that there had not been sufficient opportunities for such interaction

to take place. One student wondered if the machines had prevented this as it was the first course that she had attended on which there was so little communication between students:

> I definitely felt that we could have spent some time exchanging views. It is the first course I have been on where you can go there and come home without having spoken to anyone. On most courses people go because the course is quite a social activity. I think it would be very interesting to hear people speak a lot more. I can't figure it out, whether it is the nature of the course or the people involved. Partly, it must be the contact between student and machine. But also, if I was stuck there was nobody looking around for help. Sometimes I would go to someone else and say I can't figure this out, but there was no come and go.

The following comments revealed how these students missed interacting with other students:

> I hardly spoke to more than one or two on the course. The reasons for doing the course would be varied and therefore it would have been interesting to find out what different machines people had. It might have been possible to extend contact, exchange information, especially if people were thinking of buying. On in-service courses it is often the chat with colleagues which is the most important.

> One doesn't really get to know other people, we were all doing our own thing. It may be if there was more discussion we would have had a cross-fertilisation of ideas. This might have been stimulating, I don't know what other people wanted to get out of it. Quite a few had secretarial experience. It might be that one should have an explanation followed by some work, then a break with discussion, after which people could have another go.

The tutors considered that time for interaction amongst students would need to be extracted from the time spent on machines. But perhaps, at least, they could have given the students some time to get to know each other on the first night and then they could have suggested an after-session meeting-place, a local cafe or pub where students could gather if they wished. This, as we shall see on the section on evaluation, would have been beneficial for the tutors too.

The students on Course B, unlike those on Course A, did not express a wish for more interaction with other students during the course. This was not surprising as they had been given plenty of opportunities during the course to mingle together. As we saw in the section on 'effectiveness as gaining self-awareness', the tutors and co-ordinators saw social interaction as being an important part of their students' learning needs. So they provided opportunities for this to take place both during and after courses. Similarly, as we saw in the earlier section on guidance, the tutors endeavoured to give their students continuous support for both vocational and social problems. During our observation period, the tutor gave some students on the spot reassurance about housing and transport problems. The co-ordinator was concerned that there seemed to be no provision for such help in the new premises. Some students might be left in isolation with their problems. She admitted that other students did not need such support:

> People with emotional problems, people with problems from the financial point of view, problems with housing department, social security, job centre - you name it - there is no-one there to talk to about it on one-to-one basis. You cannot expect the tutors to drop a class and attend to a particular student. Much easier to handle people in that small situation. (the former premises)
>
> The way it's being done, I and some students see it as impersonal - not all of them. They seem to be working in isolation to a large extent.

One Course B tutor described how former students could still keep in touch by means of the club. He saw this support as being important for students who, even after training, failed to find employment. But there was now some doubt as to whether or not, the Employment Training Managers intended to continue running the club:

> Also the club helps that - that gives them something else to grasp on to because you've got to remember as well that there's no point in boostering someone's self-confidence and getting them all excited about, 'Oh, I'm going to get a job, I'm going to get a job,' and they go out and it (that feeling) gradually disappears and nothing happens. So we try and link up at the end of the course, we try and keep in touch with the students - both by the club scene, by - if we find out about any vacancies or posts that might suit them, we'll get in touch with them - we have social evenings - all former students are asked - also anyone's welcome to drop in at any time, have a chat with Z (co-ordinator), myself or Y (other tutor). They become friends rather than students.

Another feeling of isolation was expressed by the Course A students. They felt that they had not been given enough responsibility for making decisions about the format of the course. They would have liked to have been more in control of their own learning by being given opportunities for discussion and by receiving less lecturing from the tutors:

> People seemed to be doing different things in the course. It would have been interesting to see what other people were doing, rather than just doing your own thing. I know it is very difficult to push people together and make them interact. However one could learn from other people. They have different reasons for being on the course and a different background. Perhaps they could tell you something of interest rather than just the lecturers telling you something.
>
> I think that adults do learn differently and that far more could be made of this. Adults will speak out, they will ask questions. They will communicate more. I don't know whether some course lecturers know how to handle that - still many lecturers talk at you. Some do not use the potential to spark off discussion. There could be tremendous discussion. I think possibly that adults should do more about it. The courses are voluntary and paid for, the lecturer is not doing you a favour. Some lecturers feel that they have to get through all the material. I don't think you have to with adults. We ourselves - the students - should be taking more control.

TUTOR ISOLATION

The tutors on both courses expressed a feeling of being isolated from their students though this had a rather different meaning on each of the courses. The evening course tutors said that they lost contact with their students after the completion of the course. This meant that they had no means of evaluating the long term benefits of the course or of gaining ideas from students for planning computing courses in the future. One tutor complained:

> We get feedback from full-time students and their employers. But with night-school we don't know. There is obviously an enormous appetite for anything on computers. In six months time it would be nice if they came back to tell us what it would have been good to cover. Six months is arbitrary, but you also don't know if they are subconsciously benefiting. Last night is the end, we will never see them again.

Perhaps if during the course, they had made an attempt to make social contact with their students, as we suggested in the previous section, they may have managed to have kept in touch with some of the students. As we have seen in the section on student isolation, the students had been keen for there to be an opportunity for making social contacts at least amongst themselves.

In the past, the day course tutors had been used to having close links with their students. For instance, the co-ordinator interviewed students in the same premises as they were taught. Therefore before the start of the course, the tutors had plenty of information about their students. Tutors were now seeing some of these close links with their students disappearing. For example, students were now interviewed elsewhere and arrived to do a course without the tutors having this information. Thus, the tutor did not know that the disabled student could only use one hand and that some of his students had previous computing experience. The co-ordinator described how students now joined the course:

> No policy - you just take them as they come off - like an assembly line - as they are referred.

The tutors, though, were not really mainly concerned about their own feelings of isolation. They were more worried about their students' isolation, how these people would cope if they no longer received help from either the tutors nor from the new various guidance procedures. The tutors and co-ordinators felt that the latter should have been adequate but they were not being fully implemented and this, as we have seen, had adverse effects on their students' learning. One tutor pointed out how his former role as adviser was meant to be replaced by that of the Training Manager and the students' Action Plans.

> They're free to ask questions on any subject, not just computing either. If someone said to me I'm interested in learning about cooking or whatever I'd do my best to find out whether or there was a course for them to follow through. Now with these

> Personal Action Plans, that's a little more difficult. Though with these, they are supposed to be dynamic, they're meant to be kept by the student and changed at any time. They're supposed to sit down with their Training Manager and say, 'I'm not too sure I want to head in this direction.'

The evening class tutors expressed a feeling of being isolated from their colleagues as well as from their students. They maintained that there was a lack of liaison within the extramural department. For example, they needed to be given more background information by the department about their students. Then they could plan courses more suited to the students' needs. In their view, adult education was important but there was a lack of co-ordination between the different classes being taught by this department. They did not feel that the University itself gave them enough recognition for carrying out this form of adult teaching.

RESOURCES

In Chapter 2 in the section on 'effectiveness as learning about computers', we saw how the Course A tutors maintained that the choice of equipment for a beginners' computing class was important. They considered that the machines needed to be easy to use so that students would quickly feel at ease and so would be readily able to understand what computers could do. These tutors had been fortunate in that they had been able to choose their own equipment. The resource needs of the students on Course B were not nearly so well catered for. For instance, they had to share one printer between three, whilst the Course A students had a high quality laser printer connected to their individual machines. In addition, during the first run of the course, Course B students had to share one learn-to-type disc amongst the whole class and because the course was about to be transferred to a building with different machines, there were not sufficient teaching materials developed for the course. Students who were quick learners, or who had previous computing experience, could not be moved on to another more advanced course because there was not room for such flexibility. Understandably these various shortages were frustrating for the students and their tutor. But fortunately the difficulties would be short-lived as soon the course was to be transferred to new premises with newer equipment plus more space. Many of the problems mentioned in previous sections, such as friction between experienced and inexperienced students and feelings of boredom, would then be solved.

The Course A tutors felt that with two tutors and one technician for half the evening they were lacking in manpower. But this perception of a shortage could have been more to do with the course content being unsuited to such a wide range of ability amongst the students. On both courses the less experienced students felt that they were getting insufficient help. So better guidance procedures directing more experienced students away from the beginners' course, or to quickly transfer such students on to more advanced courses might solve these difficulties.

The Course B tutor with seven students did not feel that he needed any further assistance. He wished that there was more non-teaching time available for developing materials for the new course. Course A tutors felt that the amount of time that they had spent on planning and teaching their course

was not appreciated by the University. They held that this was not entirely the fault of the University but was due to a general undervaluing of the needs of the communities surrounding any university. This resulted in a lack of funding:

> The problems of commitment are not just within the University, it is a nationwide thing. There is no encouragement to the University to put on such a course. It's all charity work when it comes down to it. You could argue that it's not a good way to do things. The University is living within a community, there's a lot of talk of Universities becoming more accountable to the community, this is one way that they can do it but it is not backed up, there is no structure. You are talking about quite big changes in the University structure and I can't see that happening.
>
> The problem is simply one of time and recognition of that. So the way we feel is that this kind of work should be continued and expanded, but then you have to rely on one or two things. You either have to rely on the goodwill of the people doing it or you have to have a more firm University backing for it and that in the end comes down to money. Not money for the tutors but money for the resources to relieve people from other duties.

EVALUATION/ASSESSMENT

Course A tutors carried out their own evaluation of the course by requesting their students to fill in questionnaire during the last session. But they had no means of finding out the long-term benefits of the course as they lost contact with all their students after the last session. This, they maintained, was undesirable as some such information would be useful for planning present and possible future courses. They saw this lack of evaluation as being a failure on the part of the Department of Extramural studies. But they felt that this lack was very much due to a general nationwide disinterest in the values of adult education and so to insufficient funding for the University to carry out evaluation procedures and for the tutors to develop new courses.

Course B was still in the planning stages so it would be too early to carry out any evaluation of the effectiveness of teaching methods in general. All that can be said so far is that several students seemed to be very poorly motivated and that appeared to be because they had not been interviewed with sufficient care before joining the course. In such circumstances, it was difficult for effective teaching to take place. At the time of the research, these guidance procedures did seem to need evaluation as the lack of implementation was having an adverse effect on some students' learning. Some students seemed to be too experienced to benefit from this two week course. The tutor said that they were probably there just because the class needed filling. Cost-effectiveness seemed to have taken precedence over learning needs and effective teaching. In the new building, the tutors intended to implement assessment procedures which would allow students to move on to more advanced courses at their own speed and to gain entrance qualifications for further computing courses at other institutions.

SUMMARY

In this chapter we have described the way in which a range of factors impinge on teaching effectiveness. These were lack of guidance and support; the composition of the class in terms of experience, ability and age; the wish felt by several students for more contact with other students; the need for students to have some control of their own learning; the tutors' lack of background information about students; the lack of recognition by providers of the amount of tutors' work and of time involved in the preparation and running of such courses; the need for adequate resources for equipment and for the setting up of courses; and the value of undertaking course evaluation and guidance.

In the concluding chapter we try to draw together the key points from our case-studies and discuss their implications for teaching.

4

CONCLUSION

In this final chapter we consider what our research on these computing courses has to tell us about adult education in general and teaching methods in particular. Firstly, we provide summary answers to various aspects of the research described in Chapter 1. Secondly, we provide tables encapsulating the central elements of our findings on teaching methods.

THE RESEARCH QUESTIONS: SOME ANSWERS

Looking back to the original focus of the research, what have these computing courses got to tell us?

- *providers' definitions of adult students and the influence of adult students on teaching methods.*

Course A was intended for anyone over the age of 16 who had an interest in computing and who had little previous experience of the subject. The tutors used teaching methods which they saw as being appropriate for such adults. They wished to demystify the subject and to allow the students to discover some of the many uses of computing technology. To achieve this, they selected machines that were easy to use and they gave their students plenty of practical experience backed up by friendly individual support from themselves.

Course B was intended for students who were registered as unemployed. Some of these adults, for example the disabled, the long-term unemployed and those under the age of 25 had precedence over other adults for joining the course. The main aim of the course was to get such people back into employment. So in order to help their students to both get a job and to retain a job, the providers felt that the students needed to acquire not only an updating of their skills but also to regain certain social skills, such as being punctual and working effectively with other people. This meant that opportunities to use computers as well as opportunities to mingle with other students both in class and during social activities were seen as being important 'learning' times for their students. The tutors were expected to encourage students to be good time-keepers and to help to rebuild students' self-esteem. Thus, the teaching methods for Course B were supposed to be helpful for teaching something apart from computing. There was, one might say, a 'hidden agenda'.

- *the differences between younger and adult students in terms of study habits, learning methods and motivation among others.*

The Course A tutors did not perceive that age had much affect on students' study habits, learning or motivation. Course B tutors maintained that the older students seemed slower than the younger students and they did not have the same previous computing experience from school

learning as the younger ones had. Nevertheless, their older students appeared to be more willing to keep practising than the younger ones were; to be able to acquire more knowledge and to retain their learning for longer. The tutor implied that the older students' lack of familiarity with computing technology was perhaps an advantage. They seemed more keen to learn than the younger students who seemed to think that they did not need to make an effort with computing as they knew about it already. But in many cases, this was not true. Their previous computing experience was sometimes rather meagre in that they had sometimes shared one computer between thirty pupils.

The Course B student who was also a computer trainer said that she liked to put her computing students in pairs, one older student with a younger student and each with their own machine. She considered that this type of support helped to build up the confidence of older students who, unlike the younger ones, tended to have had very little previous experience. The younger students did not feel that they were being held back as they were doing their own work and just helping the other student with minor problems.

One tutor felt that it was difficult for older students to feel motivated as it was more difficult for them than for the younger students to get computing jobs. He said computing tended to be an occupation for the young. He described how a student in his 50's considered the course was 'fun' to do but that he could not see any vocational benefits deriving from it.

The co-ordinator maintained that it was difficult for adults to admit to a lack of knowledge because in our society being adult meant being experienced and having plenty of knowledge. Adults therefore felt humiliated if they had to admit to a complete ignorance of a subject - which was what some of them had to do as far as computing was concerned. Children, on the other hand, do not mind admitting that they do not know about something because they, unlike adults, do not lose face.

One young student said that on this course and at college, he missed competing against other students.

- *the advantages and disadvantages of a mixture of younger and older students in the same class*

First let us remind the reader of the different age range on the two courses. For the evening course, students were aged between 30 and 65 whilst the Employment Training students, ranged in age between 18 and 58. The Course A tutors did not seem to perceive that there were any advantages or disadvantages in having a mixture of younger and older students in the same class. They maintained that ability had a more important effect on teaching in that it was difficult to plan a computing course which suited a wide range of ability. Their older students said that they found the younger students tended to liven up the class as they were more prone to ask questions than the older students were. So they felt that the mixture of ages was beneficial to their learning. They wished that there had been more opportunities during the course for older and younger students to exchange ideas and to discuss their varying previous experiences.

Though the tutors did not point out any advantages or disadvantages in having a mixture of younger and older students in the same class, the co-ordinator on Course B, saw the two age groups as being slightly antagonistic towards each other; the older ones did not want to appear foolish in front of the younger ones whereas the latter felt that the former would hold them back. Some students were not entirely happy about the range of ages on this course. An older man considered that the younger ones all had previous computing experience and so should not be taught alongside older students who had no computing experience and who were, therefore, bound to be slower. The younger students took up the tutor's time and then insufficient help was given to the older beginners. One young student said that he would have preferred being in a class of the same age group as himself as he felt that his interests were so different from the older students.

- *the problems in learning needs adults see themselves as having and the institutional responses to these*

The students indicated that plenty of practical experience backed up by individual tuition was particularly helpful for learning computing. For both courses, each student was provided with a machine and a low student-tutor ratio. Many of the students on Course A felt that they needed more opportunities to interact with other students on the course as they considered this would be beneficial to their learning. Such interaction would enable them to exchange and develop ideas. Some of the students also wanted to be more in control of their learning. The students on Course B appreciated being given opportunities at 'open' sessions to select activities for themselves.

Some of the Course A students would have liked to have been given guidance on the whereabouts of further computing courses. The tutors held that this type of advice would be difficult to provide as educational institutions tended to be poor at giving such information to one another. There was a lack of communication between the various institutions. Some Course B Employment Training students wished to know how their learning on the course was going to help their vocational aims. This advice should have been provided to them through pre-course assessment procedures and through Training Managers' assistance with students' Action Plans. The set-up for this guidance seemed to have been in place but was not yet being implemented. One student indicated that it would be helpful too for such students to be given an opportunity to discuss in class each others' vocational plans. The students were supposed to have this type of discussion with their Training Managers too.

- *adult students' perceptions of providers in terms of attitudes towards mature students and in terms of the range of teaching methods used*

Half the Course A students had received the University brochure because they had previously attended a course there and three students had signed on for the University's other computing course. This does perhaps signify that the adults found this provider's attitudes towards mature students as being satisfactory. One student admitted that the equipment and the type of teaching had attracted him to the course:

> The University has the latest technology. They also tend to be quite understanding of people.

Most Course B students had not been given a choice of provider. Some of them objected to the content of the course rather than to the range of teaching methods used.

- *effectiveness of teaching methods in general and cost-effectiveness in particular*

As we pointed out in Chapter 3, Course A tutors carried out their own evaluation of the course by requesting their students to fill in a questionnaire during the last session. But the Department of Extramural studies does not carry out any form of evaluation. The tutors maintained that this was unsatisfactory as information derived from an evaluation would be useful for planning present and possible future courses. Moreover, they felt there could also be a cross-course assessment of relationships between subjects. They pointed out that the lack of evaluation was probably due to a lack of funding.

The course attracted the number of students for which it was designed, 20, so perhaps the course fee of £14.50 was set at about the right level. No students passed comment on the amount.

Course B was still in the planning stages so it would be too early to carry out any evaluation of the effectiveness of teaching methods in general. All that can be said so far is that several students seemed to be very poorly motivated and that appeared to be because they had not been interviewed with sufficient care before joining the course. In such circumstances, it was difficult for effective teaching to take place. Some students seemed to be too experienced to benefit from this two week course. The tutor said that they were probably there just because the class needed filling. Cost-effectiveness seemed to have taken precedence over learning needs and effective teaching. In the new building, the tutors intended to implement assessment procedures which would allow students to move on to more advanced courses at their own speed and to gain entrance qualifications for further computing courses at other institutions.

There were suggestions for improvements from the students for both courses. Some of the evening course students had found the course too intensive and felt that they needed more time to practice. A few considered that the teaching had been too tutor-centred for adults and wished that there had been more opportunity for discussion and negotiation. Many of these students regretted that there was not sufficient time to communicate with, and learn from, the other students.

Some of the day students felt that they would have liked to have covered more ground in the two weeks. During the course, some students did seem to spend quite a lot of time playing computing games. They, perhaps, were unwilling to consolidate properly their knowledge by practising and experimenting for themselves. The new assessment procedures and further development of course materials would hopefully overcome this problem. Some students considered that there was sufficient content, particularly for beginners. A few students thought that the handouts could have been more clearly written and that some video material would have been helpful. One student, the computer trainer, maintained that the course would have been more interesting if the students had

spent less time on each activity. For instance, sometimes they spent too much time working at the machines or too much time listening to the tutor. On both courses, a few students held that on some occasions, the tutors tended to be too much like experts and they did not always explain computing errors as fully as the students would have liked. Nevertheless, on both courses, many students expressed their appreciation of the teaching which they had received.

Our overall impression from these computing courses is that most students, particularly those who were interested in the type of computing being offered on the course, had gained from attending. Some of the gains mentioned by the students were:

- a practical knowledge of computers which would be useful at home or/and at work
- an increase of interest in computing
- a revision of previous computing knowledge
- more self-awareness, such as the value of study for one's personal development
- attitudinal changes, such as being punctual.

After attending these courses, many students were eager to learn more about computers or to put their new computing knowledge into practice either in a present job or in a possible future job or in the home.

SUMMARY OF VIEWS ON EFFECTIVE TEACHING

In the three boxes below we attempt to encapsulate the central elements of our findings on teaching methods. The first two cover the perceptions of both students and tutors and are subdivided into the four areas of effectiveness dealt with in Chapter 2: learning about computing, an interest in computing, enjoyment and gaining self-awareness. We hope that these two tables will generate questions in themselves. However, we have also included a further box designed to stimulate discussion on some issues in planning courses.

BOX 1: ACHIEVEMENT

WHAT DID THE STUDENTS VALUE?	HOW WAS THIS ACHIEVED? (The views of tutors and students)
Learning about computing	
Feeling at ease with the computers	By attending a course designed for beginners. Through providing each student with a machine. By tutors choosing user-friendly equipment. By students receiving individual support from the tutors. Through tutors establishing a friendly relationship with students.
Having plenty of practical experience	Hands-on exercises. Each student having a machine to work on.
Relating theory and practice	Tutors giving lectures or brief talks backed up by visual aids demonstrating principles of computing. Clearly written explanations in handouts. By using a computer manual.
Working at their own speed	Students having individual machines. The provision of additional exercises and activities for quick students. Individual tuition.
Feeling in control of the machine	Students' confidence being built up through the above teaching methods. Students being encouraged to experiment with the computers. Students being in control of their own learning in 'open sessions' when students choose their own activities. By tutors not overloading the course content.
An interest in computing	
Learning how they could use computing at home or at work	Working through packages demonstrating the uses of computing eg word processing, spread-sheets, mailmerge. Listening to lectures/talks on the uses of computers in the home and workplace. Through working on machinery which is easy to use. Through individual tuition from friendly tutors. Through having plenty of practical computing experience.

BOX 1: ACHIEVEMENT, continued

Enjoyment	
Learning something new and challenging	Course being targeted at appropriate students (ie beginners). Through learning about a new technology. Through gaining an understanding of computers.
Gaining confidence	Through using user-friendly equipment.
Having a sense of achievement	Through feeling in control of the machines.
Gaining self-awareness	
Learning to mix with a variety of people	Through setting time aside for tea and coffee-breaks. Through after course social activities eg club, parties.
Learning to be punctual	Tutors encouraging students to be good time-keepers eg arrive on time in the morning, take coffee-breaks at fixed times.
Learning to be active again	Tutors encouraging students to keep working.
Realising the values of study or of training - both on the present course and in the future	Through returning to adult education.
Gaining self-esteem	Through coping with new technology. By attending a course. By being active.

BOX 2: CONSTRAINTS

CONSTRAINTS IDENTIFIED BY TUTORS AND STUDENTS	THE CONSEQUENCES OF THE CONSTRAINTS (The views of tutors and students)
Learning about computing	
Insufficient equipment	Students having to wait eg for a turn on the printer or the typing disc. Tutors spending time on equipment instead of on teaching students.
Tutors correcting errors too quickly and without offering explanation to students	Poor relationship with students. Students losing confidence in their own abilities at computing. Computing not demystified.
Tutors lecturing for too long	Students not concentrating. Students bored. Students feeling no control over their own learning.
Experienced students participating on a beginners' course	Less quick students feeling confused. Tutors spending too much time with the non-beginners. Resentment developing amongst students.
An interest in computing	
Students not given adequate guidance before the course	Students bored and discontented. Not being interested in the type of computing being covered by the course. Not seeing how the computing offered on the course will help future vocational plans.
Enjoyment	
Students feeling that they have been sent on a course	Resentment in such students.
Students with different levels of previous experience taking the same course	Students bored or confused because course too easy or too difficult.
No social activities and too little social interaction	Students not speaking to each other.
Gaining self-awareness	
No proper pre-course assessment of students learning needs	Students too resentful for 'effective' learning or attitudinal changes to take place.
No provision for social interaction with students	Lack of opportunities to exchange ideas with other students.
Too tutor-centred	No opportunity for students to direct own learning eg no class discussion.

BOX 3: FURTHER QUESTIONS FOR THOSE PLANNING COURSES

ADDITIONAL QUESTIONS FOR PLANNERS

1) Has the type of computing being offered on a course been clearly defined for students before they attend? Can they see the relevance and appropriateness for their own needs?

2) What should providers do when a course attracts students with a wide range of experience or of ability? When do they consider that an advanced course should be developed? Are tutors being given sufficient non-teaching time for preparing additional materials for the quick learners?

3) Is the equipment being used on a course going to enhance or hinder students' learning?

4) Are there opportunities for students to learn from each other if they so wish?

5) Are the students given sufficient control of their own learning?

6) If students wish to continue studying computing, can the provider give them directions to other courses?

7) Do some students eg the unemployed have needs other than the need to learn computing?

REFERENCES

ALLMAN, P. (1983) The nature and process of adult development, in TIGHT, M. (ed) *Adult Learning and Education*. Beckenham: Croom Helm.

BROOKSFIELD, S. (1986) *Understanding and Facilitating Adult Learning*. Milton Keynes: Open University Press.

CHADWICK, A. *and* LEGGE, D. (1984) *Curriculum Development in the Education of Adults: a manual for practitioners*. London: Further Education Unit.

KNOWLES, M. (1970) *The Modern Practice of Adult Education: from pedagogy to andragogy*. New York: Cambridge Books.

KNOWLES, M. (1972) Innovations in teaching styles and approaches based on adult learning, *Journal of Education for Social Work*, 8 (2) pp 32 - 39.

KNOWLES, M. (1974) Issues in adult learning psychology, *Adult Leadership*, 22 (9) pp 300 - 316.

MEZIROW, J. (1981) A critical theory of adult learning and education, *Adult Education*, (USA) 32 (1) pp 3 - 24.

ROGERS, J. (1977) *Adults Learning*. Milton Keynes: Open University Press.

STEPHENS, M.D. *and* RODERICK, W. (eds), (1971) *Teaching Techniques in Adult Education*. Newton Abbott: David & Charles.

APPENDIX : COURSE A: EVENING (UNIVERSITY EXTRAMURAL DEPARTMENT): PUBLIC PROVIDER

The following description is based on our observation of four evening sessions of this course.

A CHRONOLOGICAL DESCRIPTION

Sessions 1-4

The first four sessions were not observed. Text processing and graphics were covered during this time.

Session 5 (Spreadsheets)

At 7.30 the students entered and sat at a machine. For ten minutes they read through the notes for the evening's session, which were already in front of them (information, examples to work through and further exercises). Some began to work on the early examples whilst others waited for the opening talk. The machines and software were already prepared.

From 7.40 - 8.20 one tutor talked on spreadsheets in general. The topics consisted of Typical Applications, Entering Data, Entering Formulae, Selecting Cells, Relative References, Entering a Total and Basic Spreadsheet Capabilities. Six pages of notes were worked through, with practical examples, as the tutor talked on each point.

By 8.30 the students were ready to try an example on their own, with individual help from the tutors. This consisted of producing a bank balance sheet. Everyone worked at their own pace and with approximately half an hour to go some were ready to move on to another exercise. This was more complicated and consisted of producing an inventory and cost estimate of the contents of a laboratory.

During the period of working on their own there was some movement by the students to ask each other questions, but most were content to sit and wait for one of the tutors if they had a problem. By the end of the evening a few had finished the laboratory exercise whilst some were still working on the bank balance. Most seemed to accept that they would not complete all the work and therefore finished at a convenient place.

Session 6 (Spreadsheets continued)

As on the previous week the students had an opportunity to look through the session notes before beginning. This week the introduction consisted of first recalling some of the last session's material and the course members worked through this with the tutor. There then followed the introduction of further techniques concerned with spreadsheets, such as absolute references and cut, copy and paste. The tutor worked fairly swiftly through this section, although he was willing to pause and answer questions if the students interjected.

As before, by 8.20 an exercise was introduced. This involved working with two or more spreadsheets and needed some explanation by the tutor before the students were left on their own. Some then continued to work at this exercise, preferring to make sure that they had mastered it whilst others went on to a further task. This involved creating two spreadsheets and combining them on a third. During the last hour the tutors were kept busy answering a number of queries from students who were at many different stages of completion.

Session 7 (Project Work)

Six different projects were introduced to the students. These were laid out on separate sheets and the members were asked to choose one to work on during the session. Two projects involved text processing, two involved graphics, one was concerned with a spreadsheet exercise and there was a further task, which involved text processing combined with spreadsheet work, which had been introduced the week before. It was therefore possible for the students to concentrate on any one aspect of the course. The remainder of the session was then taken up with individual work assisted by the tutors.

Session 8 (Course Review and Project Work)

The evening was begun by a review of the course. This lasted for approximately half an hour and consisted of a short talk on the advantages and disadvantages of the machine that the students had been using, followed by recall of the major applications to which the students had been introduced. The students were also given an evaluation sheet which they were asked to fill in before the end of the session. They were then asked to continue the project begun the previous week, to start a new project or to try one of the 'games' which were offered. The 'games' were used to show the students to what extent they had mastered the physical skills of operating the machine. Over the final two weeks, the course members had chosen a variety of projects, some working quickly through them, whilst others proceeded more slowly with occasional deviations using experiments of their own making.

APPENDIX B: DAY (EMPLOYMENT TRAINING) COURSE: PRIVATE SECTOR PROVIDER

This description is based on our observation of the teaching methods used on Course B. For the first running of the course, we observed six and a half of the nine days. For the second running, we observed four of the nine days. We used part of the time in which students were carrying out individual activities, to conduct our interviews. First, we present a brief outline of the topics covered during the course and then we describe the activities which took place on day one and day two.

COURSE TOPICS

Session	1	Finding your way around the computer keyboard
"	2	Finding your way around the computer keyboard
"	3	Understanding how to use the word processor to create and edit a document
"	4	Preparing a document for the printer and printing it out
"	5	Students practice the various skills they have acquired during the first week
"	6	Physical components of a computer
"	7	Setting up a database
"	8	Formatting a disk: copying files; deleting files
"	9	Mailmerge
"	10	Students practice

Session 1: Monday ; 4 male students.

9.30 - 9.55	The students and tutor talked together as they had a cup of coffee.
9.55-10.05	The tutor showed the students into the adjacent teaching room where he asked them to choose a seat opposite one of the machines. He then gave them a brief introductory talk covering such topics as the Computer Data Act and definitions of hardware and software. He outlined the course and told them that it was important to read over all handouts carefully and to answer the revision questionnaires as this would help to consolidate the students' knowledge. Next he asked the students about their previous computing experience. Three students were doing computing in a placement scheme for the unemployed in the University's library. The other student has been to a computing course before.
10.05 - 10.15	The students started some practical activities on the computers. They were shown how to switch on the machines, how to insert discs and the functions of some of the keys. They each had a handout on this - 'Finding your way around the computer keyboard'.
10.15 - 10.20	The tutor gave a brief talk on the definition of a disc.

10.20 - 10.30	The students started the word processing programmes. They tried out various keys as the tutor gave them instructions.
10.30 - 11.00	Then the tutor gave a brief talk about the differences between a word processor and a typewriter. The students practised with some more keys.
11.30 - 11.38	The tutor explained how to store information on a word processor, to move paragraphs around and to make alterations.
11.38 - 12.30	The students practised these various functions; the tutor told them to share the one teach-yourself-typing disc.
12.30 - 1.30	Lunch break -one student went to college for an 'O' Grade English class.
1.30 - 2.40	The other students practised typing out extracts from books. They re-read the handouts for directions. The tutor went round the class helping individual students.
2.40 - 3.00	Tea-break
3.00 - 4.10	The students continued these exercises. One student was ahead of the rest and started the session 2 handout, 'Understanding how to use the word processor to create and edit a document'. This student was used to doing a lot of typing in his home.
4.10 - 4.30	This student wanted to print out his work so the tutor showed him how to do this and the other students gathered round to watch.

Session 2: Tuesday; 4 male students.

9.30 - 9.55	Students read the Session 2 handout, on 'How to create and edit a document'.
9.55 - 10.25	The tutor revised the previous day's work. Then he explained how to make margins, and to change the size of print. He said that he was going to come round the class giving individual help. The students were told that they could look at the computing manual but were warned it was difficult to use. During this talk, the students had been directed to use various keys on their machines.
10.25 - 11.00	The tutor went round the class, giving students individual help. Students worked through the practical exercises and questions on the worksheets. The Tutor suggested the student who was ahead, might like to try italic printing on the word processor and printer.
11.00 - 11.15	Tea-break.
11.15 - 11.40	One student used the typing disk; 2 others typed extracts from books; one typed his own computer information notes.
12.20 - 12.30	Some students printed out work they had been doing.
12.30 - 1.30	Lunch-break.
1.30 - 2.45	The students continued practising.
2.45 - 3.00	Tea-break.
3.00 - 4.00	The tutor showed students different ways in which to print out their work.